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中国奇螽属的分类研究
(直翅目:露螽科)

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摘要:**本文对中国奇螽属的种类进行了研究,并记述 2 新种,即双刺奇螽** *Mirollia bispina* sp. nov.**和多齿奇螽** *Mirollia multidentus* sp. nov.。**模式标本保存于河北大学博物馆。**

关键词:**直翅目;露螽科;奇螽属;分类;中国**
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A taxonomic review of the genus *Mirollia* Stål (Orthoptera: Phaneropteridae) from China

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Abstract: The genus *Mirollia* was erected by Stål in 1873, with about 20 species recorded in the world, including 6 species from China. This paper described two new species from China, namely, *Mirollia mutidentus* sp. nov. and *Mirollia bispina* sp. nov. The type specimens are deposited in the Museum of Hebei University.

Key words: Orthoptera; Phaneropteridae; *Mirollia*; taxonomy; China

奇螽属 *Mirollia* **是** Stål **于** 1873 **年建立的,模式种** *Locusta* (*Phylloptera*) *carinata* de Haan, 1842。**到目前为止,奇螽属全世界记载** 20 **余种**(Otte, 1997; Ingrisch, 1998; Gorochov, 1998; **慕芳红等**, 1998; Ingrisch and Shishodia, 2000; **刘宪伟等**, 2004);**中国报道** 6 **种,即:台湾奇螽** *M. formosana* Shiraki, 1930, **刘氏奇螽** *M. liui* Bey-Bienko, 1957, **复合奇螽** *M. composita* Bey-Bienko, 1962, **秋奇螽** *M. fallax* Bey-Bienko, 1962, **红点奇螽** *M. rufonotata* Mu *et al*., 1998 **和污翅奇螽** *M. obscuripennis* Liu, 2004。**奇螽属是东洋区特有属,主要分布于越南、泰国、中国、印度尼西亚等国家。**

本研究依据现有的标本和文献,对我国奇螽属进行了系统的分类研究,并发现 2 **新种,报道如下。**

奇螽属 *Mirollia* Stål

Mirollia Stål, 1873, *Oefv. Vet.-Akad. Forh.*, 30(4): 42; Stål, 1874, *Recens. Orth.*, 2: 12; *Brunner*. v. W, 1878, *Monogr. Phanerop.*, 106; *Brunner*. v. W, 1891, *Verh. zool.-bot. Ges.*, *Wien*, 41: 6; Kirby, 1906, *Syn. Cat. Orth.*, 2: 398; Karny, 1925, *Sarawak Mus. J.*, 3: 35; Karny, 1926, *J. Fed. Malay States Mus.*, 13(2 – 3): 73; Jin *et* Xia, 1994, *J. Orth. Res.*, 3: 22; Otte, 1997, Orth. Species File 7, Tettigonioidea, 179; Gorochov, 1998, *Russ. Entom. J.*, 7(1 – 2): 11; Ingrsich, 1998, *Entomol. Z.*, 108(3): 85 – 86.

属征 **头顶窄,狭于触角第** 1 **节,水平或倾斜,背面具纵沟。前胸背板具** 3 **条横沟,中隆线明显,被中横沟与后横沟切断。前足胫节内侧听器为封闭式,外侧听器为开放式;前足基节不具刺,**3 **对足的股节膝叶端部钝圆。前翅** Sc **脉与** R **脉从基部分开,**Rs **脉具分支,横脉排列不规则。前翅与后翅的外露部分同色,雄性左前翅发声区突出,具** 1 **个大黑斑。雄性下生殖板狭长,端部裂叶短,缺腹突;外生殖器明显,骨化较强。雌性产卵瓣宽短,显著向背方弯曲。**

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中国奇螽属种类检索表(雄性)

红点奇螽雄性未见报道,也未见标本,暂不列入

1. 下生殖板端部纵裂较深,裂叶长约为下生殖板长的 1/3 …… 2
   下生殖板端部具宽而浅的凹口 …… 5
2. 阳茎骨片外叶端部具 2 刺 …… 台湾奇螽 *M. formosana* Shiraki
   阳茎骨片外叶端部非双刺状 …… 3
3. 阳茎骨片外叶端部刺状或具 1 个亚端刺,外叶中部具 1 个指向腹面的刺 …… 双刺奇螽 *M. bispina* sp. nov.
   阳茎骨片外叶中部不具刺 …… 4
4. 阳茎骨片外叶较长,到达下生殖板的末端,内叶向上卷 尾须端部具 1 个亚端刺 …… 污翅奇螽 *M. obscuripennis* Liu
   阳茎骨片外叶较短,不到达下生殖板末端,端部具 6~8 个齿,尾须端部直角形内弯,并向背面扭曲,末端具 1 个粗短的齿 …… 多齿奇螽 *M. multidentus* sp. nov.
5. 下生殖板端部的凹口相对较深,阳茎骨片外叶长刺状,有的端部稍弯曲,尾须端部显著弯曲(参见 Gorochov, 1998) …… 刘氏奇螽 *M. liui* Bey-Bienko
   下生殖板端部的凹口浅,阳茎骨片外叶薄片状 …… 6
6. 阳茎骨片外叶较长,向后延伸,端部显著向内弯曲(参见 Gorochov, 1998) …… 复合奇螽 *M. composita* Bey-Bienko
   阳茎骨片外叶较短,端部稍向内扭曲(参见 Gorochov, 1998) …… 秋奇螽 *M. fallax* Bey-Bienko

Key to Chinese species of the genus *Mirollia* Stål (males only)

1. Lobes of subgenital plate long, about 1/3 as long as subgenital plate …… 2
   Lobes of subgenital plate obviously shorter than 1/3 of subgenital plate …… 5
2. Apex of external branch of phallus sclerite with a pair of spines …… *M. formosana* Shiraki
   Apex of external branch of phallus sclerite with one spine …… 3
3. Apex of external branch of phallus sclerite with a spine or a subapical spine, medial part with a spine curved downward (Figs. 1–2, 7–8, 10) …… *M. bispina* sp. nov.
   Medial part of external branch of phallus sclerite without spine …… 4
4. External branch of phallus sclerite long, reaching end of subgenital plate, internal branch strongly scrimped …… *M. obscuripennis* Liu
   External branch of phallus sclerite short, not reaching end of subgenital plate, internal branch papilioform, apex on dorsal margin with 6–8 teeth, end of male circus curved inward rectangularly, twisted upward, with a stout tooth (Figs. 11–12, 18–20) …… *M. multidentus* sp. nov.
5. Emargination of apex of subgenital plate comparatively deep, external branch of phallus sclerite long spine-shaped, or slightly curved; apex of cerci obviously curved (cf. Gorochov, 1998) …… *M. composita* Bey-Bienko
   Emargination of apex of subgenital plate comparative shallow, external branch of phallus sclerite lamellar …… 6
6. External branch of phallus sclerite comparatively long, apex obviously curved (cf. Gorochov, 1998) …… *M. composita* Bey-Bienko
   External branch of phallus sclerite short, apex twisted slightly inward (cf. Gorochov, 1998) …… *M. fallax* Bey-Bienko

1. 台湾奇螽 *Mirollia formosana* Shiraki, 1930

Mirollia formosana Shiraki, 1930, *Trans. Nat. Hist. Soc. Formosa*, 20:332; Tinkham, 1943, *Notes d'Rent. Chinoise, Mus. Heude*, 10(2):35; Jin & Xia, 1994, *J. Orth. Res.*, 3:22; Liu & Jin, 1994, *Contr. Shanghai Inst. Ent.*, 11:106; Liu & Jin, 1997, Insects of the three Gorge Reservoir Area of Yangtze River, 148–149; Liu & Jin, 1999, *Fauna of Insects Fujian Province of China*, 1:129–130.

Trachyzulpha formosana Otte, 1997, Orth. Species File 7, Tettigonioidea, 179.

观察标本:贵州习水,6♂♂,1♀;贵州赤水:1♂,1♀;贵州道真:♂,3♀♀;陕西镇巴:1♂;广西融水:3♂♂,4♀♀;湖南石门:3♂♂,2♀♀;重庆缙云山:3♂♂,4♀♀;四川峨眉山:4♂♂,5♀♀。

分布:四川、重庆、贵州、广西,湖南、上海、浙江、福建、江西、安徽、台湾。

2. 秋奇螽 *Mirollia fallax* Bey-Bienko, 1962

Mirollia fallax Bey-Bienko, 1962, *Trudy Zool. Inst. Akad. Nauk SSSR*, 30:123; Jin and Xia, 1994, *J. Orth. Res.*, 3:22; 刘宪伟,金杏宝, 1994, 昆虫学研究集刊, 11:105; Otte, 1997, Orth. Species File 7, Tettigonioidea, 179; Gorochov, 1998, *Russ. Entom. J.*, 7(1–2):11; 刘宪伟,殷海生, 2004, 广西十万大山地区昆虫, 93.

分布:云南,广西。

3. 复合奇螽 *Mirollia composita* Bey-Bienko, 1962

Mirollia composita Bey-Bienko, 1962, *Trudy Zool. Inst. Akad. Nauk SSSR*, 30:122; Jin & Xia, 1994, *J. Orth. Res.*, 3:22; 刘宪伟,金杏宝, 1994, 昆虫学研究集刊, 11:106; Otte, 1997, Orth. Species File 7, Tettigonioidea, 179; Gorochov, 1998, *Russ. Entom. J.*, 7(1–2):11.

分布:云南。

4. 刘氏奇螽 *Mirollia liui* Bey-Bienko, 1957

Mirollia liui Bey-Bienko, 1957, *Ent. Obozr.*, 36:407, 416; Jin &

Xia ,1994, *J. Orth. Res.*, 3 :22 ;刘宪伟,金杏宝,1994,昆虫学研究集刊,11 :106;Otte,1997,Orth. Species File 7,Tettigonioidea,179;Gorochov,1998,*Russ. Entom. Journal*,7(1-2):11.

观察标本:云南龙陵,1 ♂。

分布:云南。

5. 红点奇螽 *Mirollia rufonotata* Mu, He *et* Wang, 1998

Mirollia rufonotata 慕芳红,贺同利,王裕文,1998,昆虫分类学报,20(4):245-247.

分布:湖北。

6. 污翅奇螽 *Mirollia obscuripennis* Liu, 2004

Mirollia obscuripennis 刘宪伟,2004,广西十万大山地区昆虫,93-94.

分布:广西。

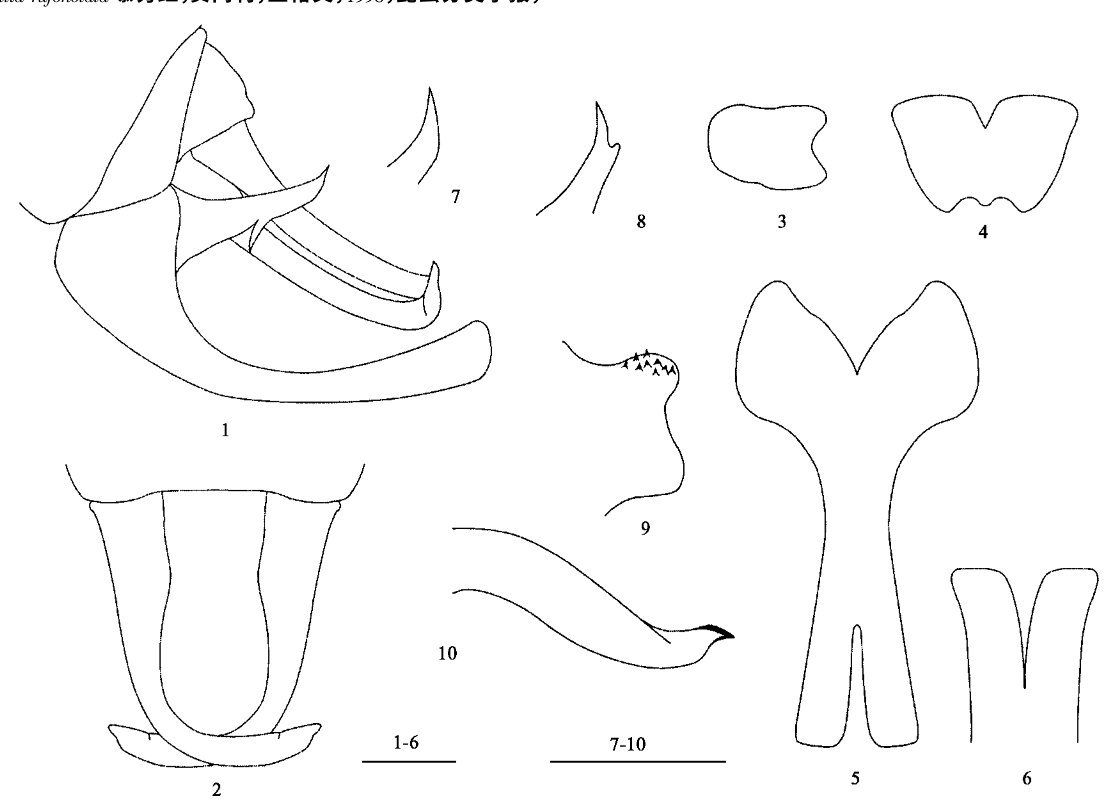


图 1~10 双刺奇螽,新种 *Mirollia bispina* sp. nov.

Figs. 1-10 *Mirollia bispina* sp. nov.

1. 雄性腹部末端,侧面观(apex of male abdomen, lateral view);2. 雄性尾须,背面观(male cerci, dorsal view);3. 雌性下生殖板,侧面观(female subgenital plate, lateral view);4. 雌性下生殖板,腹面观(female subgenital plate, ventral view);5. 雄性下生殖板,腹面观(male subgenital plate, ventral view);6. 雄性下生殖板,端面观(male subgenital plate, apical view);7-8. 雄性阳茎骨片外叶端部,侧面观(apex of external branch of phallus sclerite, lateral view);9. 雄性阳茎骨片左内叶,侧面观(left internal branch of phallus, lateral view);10. 雄性尾须端部,端面观(apex of male cercus, apical view). Scale bar = 1 mm

7. 双刺奇螽,新种 *Mirollia bispina* sp. nov.(图 1~10)

雄性:体小型。头顶端部窄,狭于触角第 1 节,端部钝圆,基部隆起,背面具细纵沟。前胸背板宽短,中隆线明显,缺侧隆线;前缘微凹,后缘较直,中部稍凹;3 条横沟明显,沟后区较平坦;侧片长稍大于高,肩凹明显。前足基节不具刺,前足股节腹面缺刺,前足胫节基部听器部位显著膨大,内侧听器封闭式,外侧听器开放式。中足股节腹面具一些微刺,后足股节腹面外侧具 6~8 个微刺,膝叶端部钝圆。前翅远超过后足股节端部,较狭,前缘与后缘近于平行,翅顶钝圆,Sc 脉与 R 脉基部分开,中部接近;Rs 脉从 R 脉的中部之前分出,分 2 叉,横脉不规则。后翅长于前翅,翅顶锐角形。腹部第 10 节背板较宽,中部下凹,后缘中央微凹。肛上板小,三角形,端部钝圆。尾须细长,基部粗壮,端部 1/3 向内侧直角形弯曲,端齿稍扭曲。阳茎骨片外叶长,基部较宽,端部刺状,向背方弯曲,或具 1 个亚端刺,中部腹侧具 1 个指向腹面的刺。阳茎骨片内叶蝶形,端部背缘具数个粗齿。下生殖板狭长,基部较宽,中部狭,端部裂叶长约为下生殖板的 1/3,裂叶稍分开,端部斜截。

体黄绿色。触角第 1~2 节外侧黑褐色,其余各节的端部具淡褐色环纹。前胸背板散布褐色的小圆

斑。左前翅发声区具 1 个大黑斑，前翅后缘的翅室中散布褐色斑。前足胫节听器背缘具黑褐色纵纹。尾须端齿及阳茎骨片外叶端刺黄褐色。

雌性：腹部第 10 节背板较短，肛上板三角形，端部钝圆。尾须长锥形，适度内曲。下生殖板近于梯形，基部中央角形凹入，端部两侧向后突出，端部中央稍突出。产卵瓣宽短，向背方弯曲，腹缘光滑，端部具细齿，背缘密布细齿。

体长：♂ 15.0 ~ 17.0 mm，♀ 12.0 ~ 14.0 mm；前胸背板长♂ 3.5 ~ 4.0 mm，♀ 4.0 mm；前翅长♂ 23.0 ~ 25.0 mm，♀ 25.0 mm；后足股节长♂ 12.0 ~ 12.5 mm，♀ 12.0 ~ 13.0 mm；产卵瓣长♀ 6.0 mm。

正模♂，贵州荔波（25.24°N，107.52°E），2000. Ⅷ. 22，石福明采；副模 6♂♂，2♀♀，2000. Ⅷ. 21 ~ 24，石福明采；1♂陈会明采，1998. Ⅹ. 23，其他同正模。

该新种与刘氏奇螽 *M. liui* Bey-Bienko，1957 较相似，主要区别是：雄性阳茎骨片外叶端部刺状，向背方弯曲，或具 1 个亚端刺，中部腹侧具 1 个指向腹面的刺；阳茎骨片内叶蝶形，端部背缘具数个粗齿。

词源：*bi* 一对、一双，*spin* 刺、棘，根据雄性阳茎骨片外叶为双刺状而命名。

8. 多齿奇螽，新种 *Mirollia multidentus* sp. nov.（图 11 ~ 20）

雄性：体小型。头顶端部窄，狭于触角第 1 节，端部钝圆，背面具细纵沟。前胸背板前缘直或微凹，后缘弧形突出，3 条横沟明显，沟后区平坦，中隆线全长明显，缺侧隆线。侧片长与高近于相等，肩凹明显。前足基节不具刺，前足股节腹面缺刺，前足胫节内侧听器为封闭式，外侧听器为开放式；中足股节腹面外侧具 4 ~ 6 个微刺；后足股节腹面外侧具 5 ~ 7

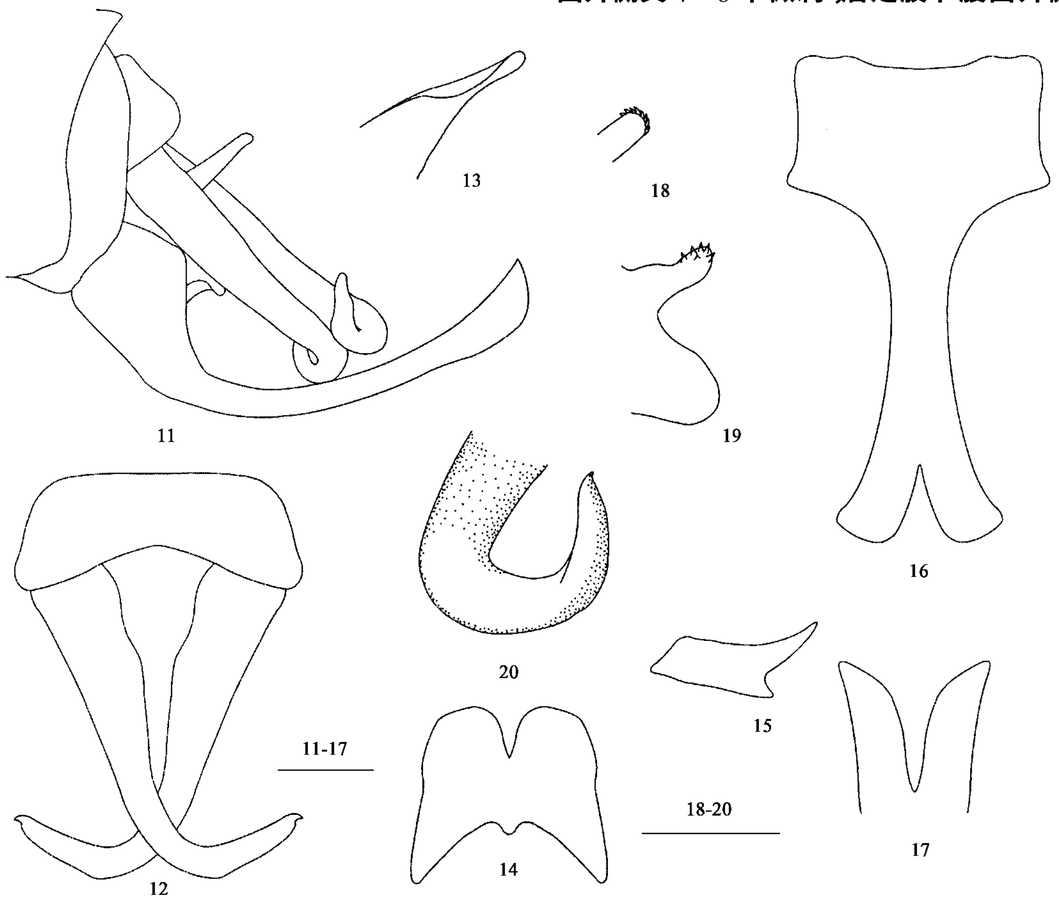


图 11 ~ 20　多齿奇螽，新种 *Mirollia multidentus* sp. nov.

Figs. 11 – 20　*Mirollia multidentus* sp. nov.

11. 雄性腹部末端，侧面观（apex of male abdomen，lateral view）；12. 雄性尾须，背面观（male cerci，dorsal view）；13，18. 雄性阳茎骨片左外叶端部，侧面观（end of external branch of phallus sclerite，lateral view）；14. 雌性下生殖板，腹面观（female subgenital plate，ventral view）；15. 雌性下生殖板，侧面观（female subgenital plate，lateral view）；16. 雄性下生殖板，腹面观（male subgenital plate，ventral view）；17. 雄性下生殖板端部，端面观（apex of male subgenital plate，apical view）；19. 雄性阳茎骨片左内叶，侧背观（left internal branch of phallus sclerite，dorsal-lateral view）；20. 雄性尾须端部，端面观（apex of male cercus，apical view）. Scale bar = 1 mm

个刺。股节膝叶端部钝圆,后足胫节背面内侧具14～18个刺,外侧具26～28个刺,胫节端部具内、外端距。前翅长,前、后缘近于平行,翅顶钝圆,Sc脉与R脉基部分离,Rs脉从R脉的中部之前分出,分2支,横脉不规则。后翅长于前翅,翅顶锐角形。腹部第10节背板较宽,后缘显著凹入。肛上板舌状,端部圆角形。尾须细长,基部内侧稍扩展,较扁,端部1/3直角形内弯,并向背面扭曲,末端具1个粗短的齿。阳茎骨片外叶较短,不到达下生殖板的端部,基部较宽,端部狭窄,中部之后边缘内卷,端部具6～8个小齿;内叶端部背缘具数齿。下生殖板基部浅凹,中部较狭,裂叶长约为下生殖板的1/3,端部较宽,稍斜截。

体绿色。触角第2～6节外侧黑褐色,其余部分黄褐色或淡色。前胸背板散布黑褐色小圆斑。前翅发声区黑褐色,边缘淡黄褐色。前翅及后翅外露部分的翅室具褐色斑。3对足的股节端部与胫节基部黄褐色。前足胫节听器的部位黄褐色,背缘具黑褐色纵纹。腹部黄褐色,散布一些红色小斑点。尾须端部黑褐色。

雌性:尾须圆锥形,端部钝。产卵瓣宽短,背缘密布细齿,腹缘光滑,端部具细齿。下生殖板宽大,基部中央角形凹入,端部两侧向后延伸,端部中央稍突出。

体长:♂15.5～16.0 mm,♀ 14.0 mm;前胸背板长♂4.5～5.0 mm;♀ 4.0 mm;前翅长♂25.0～25.5 mm,♀ 23.0 mm;后足股节长♂12.5～13.0 mm,♀ 13.0 mm;产卵瓣长♀ 6.0 mm。

正模♂,广西九万山(25.22°N,108.37°E),2001.Ⅷ.25,石福明采;副模1♂,1♀,2001.Ⅷ.24～30,其他同正模。

该新种与污翅奇螽 *M. obscuripennis* Liu,2004相似,主要区别:雄性阳茎骨片外叶较短,不到达下生殖板的端部;雄性尾须端部1/3处呈直角形内曲,并向背面扭曲,端部具1粗短的齿。

词源:*multi*-许多,*dent*-齿状,根据雄性阳茎骨片外叶端部多齿而命名。

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Appendix: Generic Diagnosis and Brief Descriptions of New Species

Generic diagnosis: Fastigium of vertex horizontal or sloping, narrower than the first segment of antennae, longitudinal sulcate obvious; pronotum with 3 transverse sulci, medial carina interrupted between second and third sulcus. Fore coxa without spine, apex of knee lobes of all femora obtuse, fore tibiae with anterior tympanum covered by a conchate fold, external tympanum free. Sc vein and R vein of tegmina separated from the basic part, with an irregular network of veinlets between principal veins, apical area of tegmina and projecting part of hind wings concolorous, stridulatory area of left tegmen strongly protruded in male, with a black spot. Subgenital plate of male long, lobes comparatively short, without styli. Ovipositor wide and short, obviously curved upward.

Mirollia bispina sp. nov. (Figs. 1 – 10)

This new species is allied to *M. liui* Bey-Bienko, 1957, but differs from the latter in: apex of external branch of phallus sclerite spinous, curved upward, or with subapical spine, and with a spine curved downward in the middle part; internal branch of phallus sclerite, lateral view, papilioform, apex on dorsal margin with several teeth.

Holotype ♂, Libo, Guizhou, China (25.24°N, 107.52°E), 22 Aug., 2000, collected by SHI Fu-Ming; paratypes 6 ♂♂, 21 – 24 Aug., 2000, 1 ♂, 23 Oct., 1998, CHEN Hui-Ming, other data are the same as holotype.

Length of body: ♂ 15.0 – 17.0 mm, ♀ 12.0 – 14.0 mm; length of pronotum: ♂ 3.5 – 4.0 mm, ♀ 4.0 mm; length of tegmen: ♂ 23.0 – 25.0 mm, ♀ 25.0 mm; length of femur: ♂ 12.0 – 12.5 mm, ♀ 12.0 – 13.0 mm; length of ovipositor: ♀ 6.0 mm.

Etymology: This specific name is derived from the Latin *bi-* and *spin-*, in reference to external branch of phallus sclerite.

Mirollia multidentus sp. nov. (Figs. 11 – 20)

This new species is similar to *M. obscuripennis* Liu, 2004, but differs from it in: external branch of phallus sclerite short, not reaching apex of subgenital plate; end of male cercus curved inward rectangularly, twisted upward, apex with a stout tooth.

Holotype ♂, Jiuwandaishan, Guangxi, China (25.22°N, 108.37°E), 25 Aug., 2001, coll. by SHI Fu-Ming; paratypes 1 ♂, 1 ♀, 24 – 30 Aug., 2001, other data are the same as holotype.

Length of body: ♂ 15.5 – 16.0 mm, ♀ 14.0 mm; length of pronotum: ♂ 4.5 – 5.0 mm, ♀ 4.0 mm; length of tegmen: ♂ 25.0 – 25.5 mm, ♀ 23.0 mm; length of hind femur: ♂ 12.5 – 13.0 mm, ♀ 13.0 mm; length of ovipositor: ♀ 6.0 mm.

Etymology: This specific name is derived from the Latin *multi-* and *dent-*, in reference to external branch of phallus sclerite.